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ABSTRACT

Consideration of the facilities and the social implications of cable television will be undertaken by a Commission on Cable Communications. The Commission will consider issues of content, form, control, and transition. It will be concerned with the effect of cable television service on mass audiences, on society, on public television, and on the homes that cannot be served by cable. The task before the Commission may be beyond its capacity to complete, but it may be responsbile for a few steps taken in the right direction. (MF)

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Issues for Study in Cable Communications

An Occasional Paper from the Alfred P. Sloan Foundation

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An Occasional Paper from the Alfred P. Sloan Foundation

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In June of 1970, the Alfred P. Sloan Foundation announced the formation of a Commission on Cable Communications, charged with performing a thorough assessment of the burgeoning technology of broad-band communications and with laying bare the social implications of that new technology. Although the Foundation has maintained throughout its lifetime a close association with technological matters, it has never before undertaken to sponsor a technological assessment of that sort.

The stimulus to that decision was the impressive growth of what is commonly known as cable television. In its earliest form a cable television or community antenna television (CATV) system consisted of a master antenna connected by coaxial cable to the homes of those who wished to subscribe, and delivering in that manner television signals from which those homes were otherwise isolated by topography; a typical such installation was to be found in Palm Springs, California, cut off by mountains from Los Angeles television signals and not provided with television stations of its own. Subsequently, areas served by less than three stations, and hence deprived of full network service, turned to cable systems in order to bring in signals beyond the range of an economical home antenna. Such early installations commonly provided signals from the major networks and perhaps an independent station or two, together with rudimentary weather and time signals over an extra channel.

Even in those early installations there was latent a technological potentiality for which at the time there was little or no need. The critical point was that even primitive coaxial systems had the capacity to deliver twelve broad-band channels—that is, twelve distinct television signals—into the home. Most of the systems did not provide programming for more than six or seven channels; the remaining capacity was unused.

Since the fifties, two technological advances have taken place. First, the basic channel capacity of the coaxial system moved up into the range of 20–25 channels, and then toward the range of

40 channels; the next move, not too far off, is likely to be toward a range of 80 to 100 channels. Second, synchronous communications satellites offered the promise of cheap and flexible interconnections among distinct cable systems.

Further technological advances are on the horizon. It is now possible to conceive of a cable system which will bring into the home not only conventional television signals but facsimile services, access to data-processing equipment, meter-reading and alarm systems—in short, almost any kind of service of which the central aspect is a communications capacity. It is possible also to conceive of such a system providing two-way communications, so that the subscriber can "talk back" with a simple audio response or even with a video response. None of this is visionary; it is every bit of it within the present state of the art.

Systems in Progress

Under the spur of this technology, private entrepreneurs began making sizable investments in cable television systems, until by 1970 some 5,000,000 homes were wired and the process of adding homes was in full swing; franchises were being actively sought in almost every major metropolitan area, and systems were springing into being week by week. Simultaneously, the hostility of the Federal Communications Commission (FCC) toward cable television began to weaken, and regulations were issued or proposed that promised an even more attractive economic base for new systems.

Predictions are hazardous wherever a growing technology is concerned. But it is almost surely safe to say that by 1975 a minimum of 25 per cent of all American homes will be wired with 20 or more channels, and that some few years after 1975 that number will rise to at least 60 per cent; if anything, both predictions are likely to be on the low side, and perhaps widely so.

Sometime in the moderately near future, in other words, most residents of the United States will be in possession of a communications facility vastly in excess of anything that has previously been known. It is unarguable that such a development will carry

with it social, political and economic implications of unparalleled significance, dwarfing the changes that were brought about by such earlier developments as the development of television itself or by the creation of the present highway network.

It appeared to the Foundation that it would be wise in this instance to undertake an examination of such a system and its implications before the system itself, for better or for worse, had been locked into place. Such an examination of television, or of the superhighway system, if it had been undertaken in time and with the proper seriousness, might have eventuated in a somewhat better system than the one we now enjoy. There are conceivably steps that might be taken now, at little or no cost, to prevent serious error somewhere down the line.

It appeared also that such an examination was precisely the kind of activity for which the private foundation is most eminently suited. Acting in the public interest, with no special advantages to be had from any kind of outcome, the private foundation can bring together persons of distinction and eminence, call on the full range of interested persons for testimony and evidence, and reach conclusions untainted by considerations of political or private gain.

On June 10, 1970, the Foundation announced its Commission. Edward S. Mason, Dean Emeritus of the Harvard University Graduate School of Public Administration, was named chairman. Other members are:

Ivan Allen, Jr., former Mayor of Atlanta.
John F. Collins, former Mayor of Boston.
Lloyd C. Elam, president, Meharry Medical College.
Kermit Gordon, president, the Brookings Institution.
William Gorham, president, the Urban Institute.
Morton L. Janklow, New York attorney.
Carl Kaysen, director, Institute for Advanced Study.
James R. Killian, Jr., Chairman of the Corporation, Massachusetts Institute of Technology.
Edward Levi, president, University of Chicago.
Emanuel Piore, vice president, International Business Machines Corporation.

Henry S. Rowen, president, Rand Corporation.
Frederick Seitz, president, Rockefeller University.
Franklin A. Thomas, president, Bedford-Stuyvesant Restoration Corporation.
Patricia M. Wald, Washington attorney.
James Q. Wilson, professor of government, Harvard University.

The Commission is intended to deliberate until late in 1971, and to issue a public report. It is being assisted by a staff which is housed at 105 Madison Avenue, New York City.

As a free-standing organization, the Commission will act entirely independently of the Foundation, which will provide financial support but will take no part in the deliberations.

Four Kinds of Issues

The issues which arise in any serious consideration of cable communications are of four different sorts:

1. The general issue of the form of the cable communications system to be brought into being.
2. The issues of content: what kinds of information (using the word in its broadest sense) the system should carry; what steps may be necessary to create and support the transmission of those kinds of information.
3. The issues of regulation and control.
4. Issues of transition: how the system is to be carried from its present state to the desired state.

Although these four kinds of issues can readily be recognized, they are obviously by no means discrete. Any conclusions reached concerning regulatory practices, for example, are on the one hand likely to be profoundly affected by decisions reached concerning content, and will themselves affect decisions concerning transition. None the less, the last three issues, at any rate, can be initially considered on their own terms. The general issue of form is somewhat different: in any organized set of conclusions regarding cable communications it is likely to be the first to be stated, but it is perhaps the last to be determined and in all likelihood will emerge only after all other considerations have been clarified.

These four kinds of issues will be discussed further in this paper, the first quite generally and the others in somewhat more detail.

1. *The issue of form.* Before the open-circuit television system developed—or perhaps it would be more accurate to say before the radio broadcast system developed—it might have been possible to envisage it as taking shape in several different ways: as a medium of advertising, in which its other functions were subordinated to that single end; as a medium of information; as a medium of entertainment; as a medium of political expression and even manipulation; as a medium of public service; as one kind of mix or another of two or more of the above. It has in fact grown in a complex way. Commercial television is almost entirely a medium of advertising, in which all other functions are deeply subordinated; non-commercial television has grown as a medium of information and to some extent a medium of political expression; the system as a whole is thus a mix of these two forms.

Cable television, with its enormous capacity for moving signals, is almost certain to end up as a complex mix. None the less, it may be necessary to determine where the center of gravity should be, or at the very least what the general proportions of the mix should be. But equally, one might come to the conclusion that the very copiousness of the system makes any such determination unnecessary and that, like the print medium, cable communications can be at any moment whatever its user wishes it to be.

2. *Issues of content.* The spectrum of services that can be performed by cable communications is broad. It can, to begin with, deliver the full range of mass entertainment and information services now being delivered by commercial and non-commercial television, associated or not associated with marketing and merchandising services that it now provides for commercial enterprise. (This, of course, is exactly and very nearly exclusively what the present CATV system does, by transmitting commercial and public television.) It can provide commercial services that open-circuit television and radio can not: neighborhood entertainment and information associated with national or neighborhood mar-

keting and merchandising services; marketing and merchandising services not associated with entertainment and information; data transmission; message services of various kinds including fire alarm, burglar alarm, surveillance, meter reading, and the like. It can perhaps serve enormously in providing or supporting public services: above all formal and informal instruction but also health services, welfare services, employment services, consumer education services, library services, community development services, and no doubt others that can be identified; within this general area might also be listed the services that the system might be able to provide to the political process by its enlistment in political campaigning and the services (or disservices) it might provide by making possible instant polling of a populace. Finally, the system is itself a research tool for the social scientist, providing him with a means of instant study and analysis of the society he is studying.

Each of these possible uses of the system presents issues. Some of those issues, as a practical matter, may be ignored, out of the reasonable conclusion that in the real world they are merely issues in theory, and not in fact. Thus, one might ask whether mass entertainment and information should ideally be associated with mass advertising in part or in whole. The reality is that in the United States and indeed most of the developed world that association has long since been institutionalized, and nothing is likely to alter it.

New Mass Audiences

Yet a quite similar issue perhaps should be met. The scarcity of spectrum space in open-circuit television has signified that for the most part the American audience has been considered and approached as a single mass audience, served by a network which links open-circuit signal areas. A cable television system, once sufficiently large and sufficiently interconnected, can provide two quite new kinds of network. First, by linking selected neighborhoods wherever they can be found, it can create (for example) ethnic networks. Second, by linking selected (or self-selected) resi-

dential units independent of their geographic location—and because of its copiousness, the system in the end will be able to do exactly that—it can create networks responsive to particular interests: networks, for example, of those who customarily read *The New Yorker*, or *Harper's*, or *Foreign Affairs*, or networks of practicing physicians.

The significance of this capacity lies in the fact that in a country the size of the United States these, too, are mass audiences. An ethnic network linking all black neighborhoods provides a market comparable in size to that appealed to by *The New York Times*, and far larger than the audience to which many major mass magazines direct themselves. It is an audience that will certainly be of major interest to the advertiser. Should those audiences be served, as the greater mass audience is served, by ethnic networks which assume the conventional shape of the commercial networks; by networks patterned after non-commercial television; or by a form of pay television in which a special subscription charge would be made for enjoyment of the ethnic channel and would go to support the costs of programming that channel?

One might also wish to consider, in this connection, direct pay-television, in which charges are made for individual programs. Any conclusion on this issue would necessitate some informed estimate of the effect that direct pay-TV might have on the existing structure and in particular the programming practices of commercial television. The advisability of mixed systems, in which programming would be supported in part by advertising and in part by direct revenues or channel subscription fees, might also be considered.

Finally, one might well decide that all these are primarily commercial considerations which should be permitted to develop, as traditionally they have developed, in the marketplace. Such a conclusion would necessitate some kind of informed estimate as to how those services would in fact be likely to develop in a free market, since the ultimate configuration of the total cable communications system, including its public service aspects, might be largely determined by the manner in which the total system took shape (as has been the case with commercial television).

All these are considerations involving mass audiences, in which it is to be presumed that the existing enterprise system is willing to play a major role. By definition, this is equally true of the services which have been described above as commercial messages: alarm systems, meter reading, data transmission, and the like.

The Effect on Society

As Dr. Peter Goldmark persuasively stated at the first meeting of the Commission, it is possible to conceive of the forces released by commercial uses of the cable channels as having a determining effect upon the shape of American society, altering profoundly its living and working patterns, its social patterns, its requirements for housing and transportation. The size and impact of such changes are matters for consideration, as is the possibility that some or many of these changes may be against the public interest and should be resisted. These are difficult matters.

One sub-issue in the area involves the matter of impulse-buying. It is possible to conceive of a cable communications system which would enable the set-owner to make buying decisions and put them into action from his own living room, even to the extent of making credit arrangements and issuing instructions to his banker. Whether such a system would be in the public interest is perhaps worth consideration.

The next area of channel use is that of the public services. It is, of course, precisely the existence of this area that has led the Foundation to place its efforts and its resources behind a study of cable communications. If the proper organization of commercial services were all that is likely to be involved, there would be little justification for Foundation intervention; matters would work themselves out in the marketplace under the customary social and political pressures. But it is characteristic of public services—the provision of health care, of welfare services, of the protection of the quality of life—that they are responsive unevenly or not at all to the guidance of the marketplace and that if they are to be wholesomely shaped they require some form of disinterested forethought and intervention.

The task is most difficult. If one looks back to the beginning of the century, it is immediately obvious how profoundly the provision of health services has been affected by the telephone, the automobile and its accompanying highway system, the technology of the laboratory and by the growth of aviation. Some of these forces, for example, have resulted in the virtual disappearance of the general practitioner, who in 1900 dominated medical care.

It is at least possible that equally profound, or even more profound changes may be wrought by a vastly expanded communications system. It is for those persons who are most expert in health services to determine which of all the possible changes will be most beneficial to medicine as a whole; it is for those same persons, joined with their peers in the fields of social, political, and economic endeavor, to determine just how the most beneficial of all the possible changes may be brought into being.

Perhaps the most difficult of such enterprises will confront those who are responsible for formal instruction and for continuing education. The process of education is basically a process of communication; yet it has remained essentially unaffected by the communications changes of the past century, which have seen the development and growth of the telephone, the radio, the motion picture, and television. This newest development of cable communications, potentially far outshadowing all the rest, might well revolutionalize education—if sufficient thought is given to the matter before the system freezes into shape. The opportunity in this area is tremendous; so is the task.

The Impact on Public Television

Within the general area of public services, Public Television is a special case. The fact that Public Television is subsidized on federal, state and local levels is evidence of the assumption that it performs in the public interest. Its assimilation to cable communications presents difficulties. The copiousness of the cable suggests that many of the interests now being served by Public Television will have channels of their own, and opens to question the present institutional arrangements of Public Television.

Another special case is that of political campaigning. For the first time, cable communications makes possible a television appeal directed to a candidate's constituency and that constituency alone, even if it is as small as an Assembly District or a precinct. This fact, coupled with the great availability of channels, may make it possible to reduce the costs of television campaigning below that of any other form of campaigning; doing so, it will abruptly arrest the present trend toward ever-increasing cost of entering into a political career, and might even make political aspirations conceivable for all.

The facts and the implications of this potentiality are of prime importance. The issues arise primarily in the area of regulation and control, and will be dealt with below.

Within the entire area of content in the public interest, economic issues will arise. If a new system, encompassing cable communications, might be developed that would provide enormously expanded and improved health services, there may well be new costs associated with it, and consequently a need to determine how those costs are to be met and how the burden of meeting them is to be distributed. Issues of this sort should be anticipated; at the moment it is difficult to state them more specifically.

The final area of content is that of social science research. Of this it can merely be said that problems of privacy arise at the outset, and must be resolved before the matter can be fairly considered.

3. *Issues of regulation and control.* These are perhaps the most fundamental and the most far-reaching issues that arise. It is necessary, to begin with, to determine the nature of the cable communications industry. Is it to be like commercial and noncommercial television, a *communications enterprise*, in which the entrepreneur undertakes to meet the communications needs of his audience? Is it to be, like the telephone industry, a *communications facility* which carries messages for any client but assumes no responsibility for the content of those messages? Is it to be, like the Post Office, a facility which should be publicly owned, with no room for the entrepreneur? Or can it be some mix of two or

all of these? At another level, is the operation of a cable communications system, of any sort, essentially a monopolistic enterprise or can it develop competitively?

In fact, the systems as they are now developing, under the pressure of franchising practices, are primarily communications enterprises with some allowances for common carrier allocations. Most of the entrepreneur's working channels are under his own control or in effect under the control of those who operate other communications enterprises. Some are allocated to municipalities, but there is at present no major use of those allocated channels and no precedent for their management. In franchises now being awarded, a channel or two is set aside for common carrier use, but again no precedents for the manner of that use have been established to any convincing degree.

Questions of monopoly will also arise, both on the local and the national level. Is it possible, and if it is possible, is it advisable to encourage competing cable systems within a given neighborhood? What degree of concentration of ownership on a regional or national scale would be in the best public interest? Associated questions are those of cross-ownership, where entrepreneurs in other communications media seek ownership of cable systems. It is true that the Federal Communications Commission has promulgated some rules in these areas, but over the long term many issues remain open for final determination.

Problems of access to the system also must be met. It is possible to conceive of a common-carrier system in which access will be handled in the marketplace, as for the most part it is handled in the printed press. But if the power of a television transmission is as great as there is some reason to suspect, the question may go beyond the mechanisms of the marketplace, and questions of fairness may make further regulation necessary.

Who Gets the Message?

There are also problems of access on the other side: not access of the message-sender to the audience, but access of the audience to the message. The technology of cable communications already

makes it possible for the sender of the message to determine, set-by-set, who shall receive it. Is this power to be regulated, and if so, how is that regulation to be effected?

Consequential First Amendment problems may also arise. The power of the television message is such that it can be used, unlike the printing press, to shout "fire" in a crowded theater. Where will be lodged the power to deny access to the system, and how is it to be assured that such power will not be misused?

Further regulatory problems arise from the fact that regulation and control are being proposed, and indeed are required, during a period when the technology of the system is under extremely rapid and to some extent unpredictable development. The capacity of the coaxial cable, now at approximately 40 channels per cable, will increase rapidly over the next few years. The capacity of the system for return signals, both audio and video, is under development. Direct addressing of messages, which will permit the sender to accept or reject on his channel any single receiver, is not far off; neither is direct linkage of a set with computer facilities outside the home, and with hard-copy facsimile machines or other representational devices within the home.

Dealing with these issues demands a familiarity with the more likely of these developments in the middle term, an assessment of their degree of acceptability or necessity, and the invention of a regulatory system which will take account of them. It may be thought necessary to inhibit the association of some of these devices with the system, and to promote the association of others by imposing requirements upon cable operators. On a wide front, the regulatory procedures may be necessary to assure that during a period of rapid technological development the systems themselves will remain dynamic, even beyond the degree of dynamism that is likely to be provided in the marketplace.

The question of dynamism emerges in another context. One might anticipate a situation in which an entrepreneur, having installed a 40-channel system, finds that all his channels are rapidly filling and will soon be carrying their maximum load. At that point, it might be in the interest of the entrepreneur to relax and enjoy the benefits of a system working to capacity, while it

might simultaneously be in the public interest to require the entrepreneur to add capacity to his existing coaxial cable or even to add a second 40-channel cable. One must take cognizance of this issue, and come to some decision concerning the advisability of regulatory procedures which would assure at all times the copiousness of the system.

Regulation of political activities will present certain difficulties. Any mechanism which simplifies access to the political arena is by its very existence a threat to the incumbent; it makes life that much easier for his opponents. It can be expected, therefore, that those who are currently in power will be moved to oppose widespread use of the cable system for political campaigning.

It is possible to conceive of use of the cable system in a fashion that will make possible instantaneous referendum and recall, or activities that will in effect generate pressures similar to those of referendum and recall. Pressed to the extreme, such a use of the cable might conceivably make representative democracy difficult to maintain. Whether regulation in this field is desirable, how it is to be exercised, and possibly above all how it is to be made acceptable, are all matters with which it will be necessary to deal.

A somewhat different issue is that of copyright. This is at present a highly contentious matter, since CATV systems are picking up, free of any payments, programs contracted for by networks. It will arise in different forms as cable companies originate their own programs.

Finally, intersecting all these considerations, is the question of the locus of control, whether on the federal, the state, or the municipal level. It may well be that the entire field should be preempted by the FCC; another federal agency might be postulated; powers might well be reserved for lesser governmental units.

4. *Issues of transition.* The system of cable communications, as it now exists, consists of a few thousand local cable systems, most of them locally owned as well as locally operated, linking a few million homes, and providing them by cable very little more

than what can be picked up locally or from a short distance over the air.

The issue must be approached on the assumption that within a few years a new system will be organized of which the structure is not yet known and remains to be determined by the interplay of many forces. In all probability whatever the forces and however they interact, that new system will serve approximately 60 per cent of the residential units in the continental United States, perhaps 30 to 35 million units; it will be so instrumented that a complete spectrum of linkages will be possible, from the scale of the nation to the scale of the single home; and each home will be served by a minimum of 40 channels and perhaps by more than double that number. There remains on the basis of that simplifying assumption, the problem of assuring the orderly transition between the present system and the system it envisages.

The issues involved in that transition are complex and many. What, for example, will be the role of the Bell Telephone System, and how will the existing Bell system be affected? How are existing television stations to be involved in the new system, and how is that transition to be effected? What will be the role of Public Television, where some stations may be weakened as they lose the support of the educational system? How is the entertainment industry, and indeed the individual entertainer, to be protected? Television has already taken over many of the functions of the newspaper and the periodical press; what happens to these institutions under the pressure of vastly expanded telecommunications?

Those Who Are Left Out

It may be assumed that the wiring of 60 per cent of the homes will have profound effects upon open-circuit television, and could even lead to its elimination. How is service to be provided to the remaining 40 per cent, who may be for good economic reasons outside the reach of the cable? Can one reasonably expect satellite-to-home service for the unreachable 40 per cent, or is some other method necessary in the public interest?

The least that can be said is that there is a wide range of interests which will be affected by the development of cable communications; to the list of those covered in this paper must be added those who have pioneered the system under circumstances of no regulation at all and who will now find themselves in a wholly new, and not necessarily friendly, environment. The issues that are thus raised, in seeking to deal fairly with those interests, will be many.

Many of the issues considered in this paper have been dealt with in the past, and especially the recent past, by the Federal Communications Commission or state and municipal bodies. The FCC is in the midst of a process of rule-making governing cable communications and franchising arrangements are currently being made by municipalities throughout the country. Activities of this kind are to be expected to continue steadily. Few of the actions that have been taken or may be taken are irreversible, however, and the pace of the coming months, particularly in the construction of new systems, is not likely to be such as to render further study and recommendations ineffective or dilatory. Any conclusions that can be reached in the next year or two can be expected to enter the forum of public discussion in good time to have an effect.

The Issues in Summary

In summary, the issues brought into being by the development of cable communications are numerous and closely interrelated. Some can be stated in a single sentence:

— What over-all form should a cable communications system ultimately bear?

— How should entertainment and information for smaller mass audiences, including ethnic audiences, be handled?

— Should pay television be encouraged, and if so in what form?

— What is the role of purely commercial services?

— What place will formal education play in a fully developed system?

— What should be the relation of Public Television to a cable communications system?

— How are services in the public interest to be organized, managed, financed?

— What is the role of a cable communications system with respect to political campaigning?

— Is there a need for channel space for purposes of social science research?

— Should cable communications be organized privately or publicly? as an enterprise or a facility, or are there mixes among these?

— What are the important monopoly and copyright questions in the development of cable communications?

— What are the problems of access, from the point of view of both sender and receiver?

— Are there significant First Amendment problems? if so, how are they to be resolved?

— How is the interplay between advancing technology and regulation to be resolved?

— How is the copiousness of the system to be assured?

— How are political activities to be regulated?

— Are there special dangers in unrestricted access to the political system?

— How should control over the system be distributed at the several levels of government?

— How is the transition between the present state and the future system to be managed?

— How are residential units outside the cable area to be covered?

Other issues resist statement in direct form; most of them are issues which arise out of the interaction of solutions that might be proposed to deal with the more simplistic issues listed above.

As may readily be seen, the Commission on Cable Communications has a sizable task on its hands. Yet the opportunity is equally sizable, and the undertaking appears to be clearly worth the effort. It may well be that the Commission will be considering not merely a new complex of communications facilities but the

very shape of the society that is before us. The task before the Commission is very likely beyond its capacity to complete; indeed, beyond the capacity of any group, however well-endowed and however hard-working, to complete. But the Foundation will be satisfied if it can honestly believe, when the study has been completed, that a few steps have been taken along the right road.

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